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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/656,435	09/06/2000	Akiko Itai	195832US	9728

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EXAMINER

BORIN, MICHAEL L

ART UNIT	PAPER NUMBER
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1631

DATE MAILED: 02/01/2002

6

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No. -
09/656,435

Applicant(s)
Itai et al.

Examiner
Michael Borin

Art Unit
1631



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Dec 3, 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6-11 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☐ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
- 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other:

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DETAILED ACTION

The Examiner of record has changed. Please address correspondence to Examiner M. Borin, AU 1631.

Status of Claims

1. Pursuant to amendment filed 12/03/01, claims 4, 5 are canceled. New claims 6-10 are added. Claims 6-¹¹~~10~~ are pending.

2. In view of plurality of issues which have arisen with the submission of the new claims, this Office action addresses only such issues. Upon clarification of the issues addressed in the rejections under 101 and 112, first and second paragraphs, below, a potential restriction requirement, rejections over prior art (previously and newly applied), and applicant's arguments, will be addressed.

Abstract

3. Applicant informs about submission of a revised Abstract; however, it was not allocated as an attachment to the response. Please, re-submit.

Claim Rejections - 35 USC § 112, second paragraph.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 6-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The rejection is applied for the following reasons:

A. Claims 6-9: The objectives of the method (e.g., "method for estimating stable docking structures", as in claim 10) are not clear, because the claims do not recite any objectives.

B. Claims 6-9: From the claim language, it is not clear how the step of "matching distances among dummy atoms and heteroatoms", recited at the end of claims, is related to the steps of "inputting", "covering"/"selecting", and "outputting" recited in the main part of the claim.

C. Claims 6,8: The term "selecting" remains vague and indefinite. The term is not defined either by the claim or in the specification, and one of ordinary skills in the art would not be reasonably appraised of the scope of the invention. Applicant argues that "selecting" addresses "stable" docking structures; however, the claims is drawn to selecting "possible" docking structures, and the criteria for such selection are not clear.

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D. Claims 7,9: The term "covering" remains vague and indefinite. The term is not defined either by the claim or in the specification. Applicant submits that the meaning of the claims is for the program "to look" at all permutations of docking structures; however, it does not reflect a particular positive method step; the meaning of "looking" is not clear, and one of ordinary skills in the art would not be reasonably appraised of the scope of the invention. Further, applicant contends that the program looks at all permutations of docking structures "given the specified dummy atoms". However, now relation of "covering" step to dummy atoms is claimed.

E. Claims 10,11 are vague and indefinite because the claims are drawn to estimating interaction between a biopolymer and a ligand, and the only method step is drawn to matching distances between dummy atoms and atoms of ligand; there is no nexus to biopolymer-ligand interaction.

F. Claims 8,9,11: The term "specifically interact with functional groups" is vague and indefinite. In which regard dummy atoms "specifically interact" with the functional groups in the biopolymer. The term is not defined by the claims or specification, the specification does not provide a standard for ascertaining the requisite "specific interaction", and one of ordinary skills in the art would not be reasonably appraised of the scope of the invention.

G. Claims 6-9: The language "inputting ...atomic element, bond type or covalent bond and three dimensional coordinates for each atom of the ligand" is not clear.

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Does it mean inputting, first, atomic element, bond type or covalent bond, and, second, the three dimensional coordinates for each atom of the ligand? Or it is that for each atom of the ligand the parameters of atomic element, bond-type or covalent bond, three dimensional coordinates are entered? If the former is correct, what is an "atomic element". Also, how bond type is different from covalent bond (which is a specific type of a bond)?

Claim Rejections - 35 USC § 112, first paragraph.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 8,9,11 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. Claims 8,9,11 introduce new matter as they recite that dummy atoms are being preset at positions that "specifically interact with functional groups" in the biopolymer. There is no disclosure in the specification on the meaning and scope of the newly claimed term and there is no guidance on how to practice the method(s) as now claimed.

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6. Claims 6-9 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. Claims 6,8 and 7,9 (or rather now canceled claims 4,5) introduce new matter as they recite steps of "covering" and "selecting" of docking structures, respectively. There is no disclosure in the specification on the meaning and scope of the newly claimed terms and there is no guidance on how to practice the method(s) as now claimed.

7. Claim 6-11 are rejected under 35 U.S.C. § 101 because it is directed to non-statutory subject matter. The rejection is maintained for the reasons of record as applied to claims 4,5. Reference to other patents made by applicant is irrelevant to the examination of this application.

MPEP 2106 (see sections 2106IV.2(b,c) instructs:

A process that merely manipulates an abstract idea or performs a purely mathematical algorithm is nonstatutory despite the fact that it might inherently have some usefulness.

If the "acts" of a claimed process manipulate only numbers, abstract concepts or ideas, or signals representing any of the foregoing, the acts are not being applied to appropriate subject matter. Thus, a process consisting solely of mathematical operations, i.e., converting one set of numbers into another set of numbers, does not manipulate appropriate subject matter and thus cannot constitute a statutory process. In practical terms, claims define nonstatutory processes if they: consist solely of mathematical operations without some claimed practical application (i.e., executing a "mathematical algorithm"); or simply manipulate abstract ideas, e.g., a bid.

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To be statutory, a claimed computer-related process must either: (A) result in a physical transformation outside the computer for which a practical application in the technological arts is either disclosed in the specification or would have been known to a skilled artisan, or (B) be limited by the language in the claim to a practical application within the technological arts.

A process is statutory if it requires physical acts to be performed outside the computer independent of and following the steps to be performed by a programmed computer, where those acts involve the manipulation of tangible physical objects and result in the object having a different physical attribute or structure.

If a claim requires acts to be performed to create data that will then be used in a process representing a practical application of one or more mathematical operations, those acts must be treated as further limiting the claim beyond the mathematical operation(s) per se. Such acts are data gathering steps not dictated by the algorithm but by other limitations which require certain antecedent steps and as such constitute an independent limitation on the claim.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Borin whose telephone number is (703) 305-4506. Dr. Borin can normally be reached between the hours of 8:30 A.M. to 5:00 P.M. EST Monday to Friday. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Michael Woodward, can be reached on (703) 308-4028. The fax telephone number for this group is (703) 305-3014.

Any inquiry of a general nature or relating the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0196.

January 31, 2002

mlb

MICHAEL BORIN, PH.D
PRIMARY EXAMINER

